

26. *Falco femoralis*.
 27. *Ectopistes migratoria*. Not found by me on western slope, except in Montana.
 28. *Melopelia leucoptera*.
 29. *Meleagris mexicana*.
 30. *Callipepla squamata*.
- Total 66.

Those from Lower California he supposed must soon be found north of the boundary, but so far but few have been obtained, chiefly in Arizona. As to the rest I ought not to be quoted for their occurrence either in California or anywhere on the Pacific slope, as my part of the work relates only to California birds.—J. G. COOPER, M. D., *Haywards, Cal.*

CORRESPONDENCE.

[Correspondents are requested to write briefly and to the point. No attention will be paid to anonymous communications.]

Recording the Numbers of Birds Observed.

TO THE EDITORS OF THE AUK:—

Dear Sirs:—In an interesting article in 'The Auk' a year ago Mr. Witmer Stone speaks of the difficulty of estimating the number of birds in a given locality, and declares it "wellnigh impossible." Although this difficulty is, perhaps, not so great as it seems, yet it has been so generally recognized that almost all field observers seem to have accepted the case as hopeless, and to have contented themselves with entering a bird in their note-books, as well as in published lists, as 'abundant,' 'rare,' or 'rather common,' words of such pleasing indefiniteness that they seldom mean the same thing to two different observers, or to the same person in regard to different species. The result is that we have but the vaguest idea of the relative abundance of different birds or of the fluctuations of any one species in different years or from day to day through its period of migration.

To take a complete census—except perhaps during the breeding season—may be out of the question, but there is no reason why an observer should not make his work exact as far as his opportunities and abilities permit,—*i. e.*, why he should not keep a record of the exact number of birds of each species met with each day. This of course would not represent the actual number present in any locality, for varying circumstances of length of time spent in the field, extent and nature of the country covered during the day, weather, etc., would considerably modify the results, but, by entering all these facts in the day's journal, and giving them due consideration in making subsequent comparisons of the figures obtained, results can be reached that, if not exact, are at least an approach toward it, and of vastly more value than the record of a vague

generalization based perhaps as much on some mere accident that has strongly impressed the imagination, as on any serious consideration of the facts observed.

This practice of keeping a careful count has been in use for the last few years among several ornithologists of my acquaintance, and it would seem worth while to urge its general adoption among field naturalists, if it were only to infuse a spirit of more scientific exactness into their field-work. Our way is to jot down in the field with pencil and paper—perhaps on the back of an old letter—every individual bird seen or heard. If birds are few, and one's memory good, it may be possible to do this all at the end of the day, but for most people, and in the height of the season, the best way is to stop every little while—in the inevitable pauses of waiting for some bird to show himself or to sing again—enter the species not already on the list, and mark against each name the number seen or heard since the last entry. Care must be taken to make due allowance for individuals already previously observed during the same day, in order not to unduly swell the record by entering them over again. At the end of each day the results can be transferred to the permanent record. To some the work may seem an irksome slavery, hopelessly interfering with their enjoyment of the beauties of nature. But with a very little practice they will be surprised to see how easy it becomes, and how much more thoroughly they observe when they have an increased incentive to identify every bird and count the number in each flock.

To illustrate the system, I give a brief extract from the notes taken near Cambridge last season by Mr. Jonathan Dwight, Jr., and myself.

May	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
<i>Ampelis cedrorum</i> . . .					2				3	4		11		10	7		2	4
<i>Vireo olivaceus</i> . . .		3		5	5	1	1		10	9		2		3	21	1	2	9
<i>V. gilvus</i>	10	9	2	12	8	2	1	2	15	14		4		8	10	1		6
<i>V. flavifrons</i>	1	2	1	4	1	1	1	1	2					1	1		2	4
<i>V. noveboracensis</i> . .					2	1			1								1	
<i>Mniotilta varia</i> . . .	4	10		6	6				5	2		1		1	3			
<i>Helminth. chrysoptera</i>	6			1											1		1	
<i>H. ruficapilla</i>	1				5				1	1				1				1
<i>Compsoth. americana</i> .		3	1											1				
<i>Dendroica æstiva</i> . . .	12	15	2	35	28	1	3	1	39	13	1	5	1	12	37	2	5	26
<i>D. cærulescens</i>		4																
<i>D. maculosa</i>	1	1																
<i>D. pensylvanica</i> . . .	8	12		4	4				8	9		2		2	7			1
<i>D. striata</i>	2		1	1	2				4	1		2	2	4	5	1		
<i>D. virens</i>		7		1					1	3				1				2
<i>D. vigorsii</i>	1	1		1					1			2		1	1		1	
<i>D. discolor</i>	1	8		10	5				5	3		2		1	4		1	

As a matter of convenience we use for a permanent record pages on which the species likely to be met with are printed in systematic order down the left hand margin. These pages are ruled both horizontally and vertically, and the vertical columns headed with the days of the month, so that a space is given for the entry of each species under each day. This greatly facilitates the making of the original entry, and upon subsequent reference to it the history of the occurrence and abundance of any species during the period of observation may be read at a glance.

When it happens to be impossible to make an exact count—as is sometimes the case with a large flock of birds—the fact of the number recorded being only an estimate can be indicated by attaching to the figures any arbitrary sign to suit the fancy of the observer. Similarly, signs and abbreviations can be used to indicate that a species was in flocks, was apparently migrating, was singing, etc. As a rule, however, such facts can be more profitably treated at greater length in the note-book proper.

Hoping that others may be induced to follow this plan, and so with but little trouble greatly increase the scientific value of their field-work,

I am,

Respectfully yours,

C. F. BATCHELDER.

Cambridge, Mass.,

March 14, 1890.

NOTES AND NEWS.

DR. LADISLAS TACKZANOWSKI, an Honorary Member of the American Ornithologists' Union, died at Warsaw, Russia, on January 17, 1890, at the age of seventy years. For many years he was director of the Zoölogical Museum of Warsaw. His numerous important publications on the ornithology of Siberia, Northern Africa, and South America, made him one of the leading ornithologists of the world. His principal special work, his '*Ornithologie du Pérou*,' in three octavo volumes, was published in 1884-86, and forms a most useful handbook of the ornithology of the region treated.

SINCE the publication of the By-Laws of the American Ornithologists Union in 1887, the following Articles and Sections have been amended to read as follows:

Article I, Section 3. Associate Members shall be residents of North America, and shall not be limited in number.